ABSTRACT OF THE DISCLOSURE

The invention provides an optical wavelength multiplex transmission method wherein a band in the proximity of a zero dispersion wavelength of an optical fiber is used and optical signals are disposed at efficient channel spacings taking an influence of the band, the wavelength dispersion and the four wave mixing into consideration to realize an optical communication system of an increased capacity which is not influenced by crosstalk by FWM. When optical signals of a plurality of channels having different wavelengths are to be multiplexed and transmitted using an optical fiber, a four wave mixing suppressing guard band of a predetermined bandwidth including the zero-dispersion wavelength λ_0 of the optical fiber is set, and signal light waves of the plurality of channels to be multiplexed are arranged on one of the shorter wavelength side and the longer wavelength side outside the guard band.